cut, although it happened three months previously. Again, there is scope for research and the accumulation of accurate evidence to justify such assertions.

Much of the broadsheet is given to a useful account of the Government's wartime developments in this field through its Wartime Social Survey. With a large field staff and relatively small headquarters staff for the analysis and reporting of the results, it has been continually, and to a large extent successfully, active on behalf of Government Departments. To take a few examples: it has studied the impact of propaganda upon the population—e.g., the kitchen front, diphtheria immunization, venereal diseases, and "coughs and sneezes spread diseases." For the Board of Trade it has kept a continual eye upon clothing needs and shortages, and the supply of various household goods and demand for them. On behalf of central and local authorities it has made surveys of housing problems, lighting and heating, and the planning of estates. Other important subject-matters include an inquiry into the occupations of old people, journeys to and from work, the social dislocation due to aerial attack, road accidents, and a monthly index of national morbidity to supplement the mortality data upon which our evidence of the health of the nation is to-day principally based. All such work has been based upon samples of the whole population. Much of it is clearly devoted to *ad hoc* inquiries, some limited to the war conditions; but with increasing Government intervention there is likely to be more rather than less of them needed in future, and, as already said, an urgent need for deeper research into the foundations of the method and its various characteristics. Given more freedom to carry out this research, there is a strong case, as P E P urges, for the permanent retention of this Governmental Survey Unit, not necessarily with a monopoly of Government work, and to a large extent carrying out its tasks in close collaboration with other organizations—learned societies, universities, and other institutions. By the publication and open discussion of its results (so far hardly attempted) a higher standard of work will be achieved and the use of more efficient techniques be introduced. Government assistance is essential because wide-scale inquiries, necessary to ensure satisfactory sampling, are expensive and time-consuming.

To those who object to samples it should suffice to point out that many of our beliefs and conclusions must be necessarily based upon them. The cost-of-living index is derived from a sample of working-class budgets; dietary studies are made on a sample of families (and not at all likely to be representative); the efficiency of a method of treatment is judged upon a sample of patients, and so on. The problem is to get the right sample. Even at its lowest the Social Survey may achieve the success of the U.S.A. Office of War Information, which, P E P reports, numbered among its noblest ventures the demonstration that a new income-tax form was incomprehensible to a substantial part of the public. "As a result of this survey a new form was devised which everyone could understand"—certainly no mean achievement—"and the Treasury gained millions of dollars from the increased revenue." This at least should touch the heart, and pocket, of the Chancellor of the Exchequer, and ensure the future of the Social Survey and the right development of its techniques and uses.

PENICILLIN: D-DAY TO VE-DAY

Under the title *Penicillin Therapy and Control in 21 Army Group* there has been published in book form[1] a series of 60 individual reports on the use of penicillin for treating wounds or disease, all based on experience on the Continent between the landing in Normandy and the end of the war with Germany. Those dealing with wounds are the product of a planned investigation organized by the consulting surgeon, Brig. A. E. Porritt, and the adviser in penicillin and chemotherapy, Lieut.-Col. G. A. G. Mitchell, which sought answers to 17 specific questions. Readers interested in the surgery of trauma will find a wealth of material here, including masses of statistics, from which to draw their own conclusions about how to combat sepsis. There is general agreement that penicillin was more effective than any of the "contrast agents" (chiefly sulphonamides and acridines) in preventing wound infection, and most surgeons credit it with an important share in the vastly improved results obtained in this campaign, though rapid evacuation, resuscitation measures, and first-class surgery are also largely accountable for them. How good these results were may be gathered from a table in an appendix giving the mortality of different types of wound, based on almost complete returns for the whole campaign. Among 50,201 casualties the deaths totalled only 2,564, and in many categories, including most open fractures and joint injuries, the recoveries were over 99%. It seems also to have been fairly generally agreed that combined sulphonamide treatment added little if anything to the protection obtainable with penicillin. Most surgeons found the clinical condition of the wound a better guide to treatment than a bacteriological report, and were willing to do without this. An interesting feature is the improved results obtained in abdominal wounds: it was doubtless a mistake to regard penicillin as inapplicable to wounds involving the bowel because some of the bacteria more easily cultivated from faeces are insensitive to or destroy it. If *B. coli* were in fact the chief cause of peritonitis after a perforated bowel, penicillin would be of little use in preventing or treating it, but anyone who has examined the exudate in such cases by rather more thorough methods than usual knows that many other bacteria are often concerned, some of which belong to generally penicillin-sensitive genera. There is much else to be learned from this section of the book about the technique for treating wounds involving different structures. The reader has to delve for it: there is no summary of the whole of this material, with the result that it is somewhat fragmentary and repetitive.

The medical and laboratory section contains reports on an almost bewildering variety of subjects: some of these are the treatment of venereal disease, Vincent's gingivitis, skin diseases, staphylococcal septicaemia, and Weil's disease, the distribution of penicillin in the body, its stability in various preparations, and matters of technique in administration. This is by far the most important publication on penicillin since the special number of the *British Journal of Surgery* devoted to it in 1944, and makes public for the first time a mass of Army experience previously available only to those with access to confidential reports. Its interest has

[1] Published under the direction of the Director of Medical Services, 21 Army Group. 1945.

not ceased with the end of the war, for surely there are lessons here which should be applied in civilian practice? Penicillin will now be used with increasing freedom for preventing sepsis after injuries of all kinds. Perhaps the most important question in this connexion is one which this book does not answer: is it possible to achieve good results by the simple and economical method of local application? There were indications in much earlier Army observations, including those made in 1943 by Cairns and Florey, that early penicillin powder treatment reduced the frequency of sepsis. The applicability of this method to civilian casualty work seems a subject worthy of study.

HEREDITY IN EXOPHTHALMIC AND NODULAR GOITRE

It has from time to time been pointed out that heredity may be a factor in the causation of goitre, though little seems to have been done in the way of large-scale or systematic studies. A recent paper by Martin[1] is therefore particularly welcome. His series is relatively large and he is able to put forward a plausible genetic hypothesis which can be readily tested in future investigations. He classifies his cases into two groups: (1) primary exophthalmic goitre; (2) nodular goitre, whether toxic or non-toxic. He argues that toxic and non-toxic nodular goitres alike arise from simple colloid goitres, that it is sometimes difficult to separate toxic from non-toxic cases, and that thyrotoxicosis may supervene at any time in the possessor of a nodular goitre. This broad distinction certainly appears to fit the genetics of these conditions and is largely responsible for the relatively clear-cut results.

The sample included 90 cases of primary thyrotoxicosis and 111 cases of nodular goitre. The striking finding in the former category is that there is a definite familial incidence—i.e., affected sibs occur much more often than affected parents or children. This points to the action of a recessive gene. Inquiries were not made as to consanguineous union among the parents. It is unlikely, however, that much would have been revealed; in so common a disease the excess of cousin marriages would be small and very large numbers would be required in order to demonstrate it. It is suggested in a genetical note by R. A. Fisher that there is strong evidence for a single recessive gene favourable to the disease, and perhaps necessary for its occurrence, and that, if this is the case, of those potentially abnormal about half the females and a quarter of the males actually develop the disease. Primary exophthalmic goitre is now widely considered to be a psychosomatic condition and not primarily a disease of the thyroid gland. The well-known role of mental shock, infection, and so forth in precipitating the disease could be fitted into this genetic scheme, for something is needed in addition to the genetic factor before the disease can become manifest. A recessive factor with a frequency of manifestation in women of 70% to 80% is also the hypothesis of Bartels, whose work is quoted by Martin in an appendix. Bartels' survey was made in Copenhagen, and is, in Martin's opinion, somewhat complicated in interpretation by the grouping together of primary and secondary toxic cases.

It is possible that the hypothesis may turn out to be too simple. One difficulty in Martin's figures is the peculiar sex-ratio of affected persons among the sibs of the original cases. The sex incidence of toxic goitre is well known. The Registrar-General's figures for deaths show a constant ratio of 7 or 8 women for every man. This is also true of morbidity. Julia Bell[2] found almost exactly seven to one in a sample of some 1,200 hospital in-patients. Martin's original index cases show just the same sex-ratio, yet among the sibs affected men are nearly as common as affected women. The discrepancy is highly significant and raises the doubt that there may be something peculiar about his sample.

The incidence of thyrotoxicosis is affected by race. An admirable and detailed study by McEwan[3] gives the distribution of deaths in 1936 for England and Wales. It was pointed out by Fraser Roberts[4] that McEwan's maps bore a startling resemblance to ethnographical maps showing stature, brunetteness, and the like. He showed that the correlation between McEwan's figures for counties in 1936 and the "index of nigrescence" in Beddoes' *Races of Britain* of 1885 was no less than 0.42. It may be that the recessive gene is commoner among the Celtic peoples of these islands, or perhaps it is the frequency of manifestation which is different. Either result would appear somewhat unusual, though by no means impossible.

The distinction between primary thyrotoxicosis and nodular goitre seems largely justified, though on the figures presented it is not perfectly clear-cut; moreover, the sex-ratio is just the same as in toxic cases. In nodular goitre there is no suggestion of a familial incidence. Affected relatives of all kinds are commoner than in the general population, but in view of the complexities due to such factors as iodine deficiency, Martin hesitates to conclude that his results provide any evidence in favour of a genetic basis for this variety of goitre.

The results of this study are suggestive rather than conclusive. They have the great merit of pointing the way to future studies on a larger scale.

OESTROGENS FOR PROSTATIC CANCER

That oestrogens improve the lot of certain patients with carcinoma of the prostate is now well established, but little is known of the manner in which the hormones influence the neoplastic tissue, or of the process of retrogression which the tumour undergoes, and no exact measure is available for assessing the effect of therapy. Schenken, Burns, and Kahle[5] recorded histological comparisons of material removed from malignant prostates by repeated transurethral resection during the first two months of treatment. Fergusson and Pagel[6] have correlated the clinical and biological findings with the histological progress of the disease as illustrated by serial biopsy over periods of six months to two years.

Not all cases of prostatic cancer are suitable for an investigation of this character. Some patients are too ill to permit serial biopsy and others are too well to require it. Fergusson and Pagel's necessarily small series is thus not free from the defect of selection. They studied five patients; four were treated with stilboestrol and one with dienoestrol, and all were subjected to repeated transurethral resection by the Gershom-Thompson cold punch. On each occasion the material resected was studied histologically. Progressive alterations in the architecture of the tumour are shown by tables, graphs, and photomicrographs. The cytological changes included (1) a progressive reduction in the number—and usually also in the size—of tumour units per square millimetre, (2) pyknosis, (3) concentration of nuclear chromatin, and (4) a reduction in nuclear diameter. The first and last of these effects can be mathematically expressed and may be used to measure the effect

[1] *Quart. J. Med.*, 1945, **14** (new series), 207.

[2] *Ann. Eugenics*, 1940, **10**, 370.
[3] *British Medical Journal*, 1938, **1**, 1037.
[4] Ibid., 1938, **1**, 1174.
[5] *J. Urol.*, 1942, **48**, 99.
[6] *Brit. J. Surg.*, 1945, **33**, 122.